

## CLAIMS

We claim:

1. A substantially purified peptide comprising the amino acid sequence selected from the group consisting of SEQ ID NOS:71, 73, 75, 77, 79, 82, 83, 83, 85, 5 86, and 101.

2. A purified, isolated polynucleotide sequence encoding the polypeptide of Claim 1.

3. The polynucleotide sequence of Claim 2, wherein said polynucleotide hybridizes specifically to telomerase sequences, wherein said telomerase sequences are selected from the group consisting of human, *Euplotes aediculatus*, *Oxytricha*, 10 *Schizosaccharomyces*, and *Saccharomyces* telomerase sequences

4. The polynucleotide sequence of Claim 3, comprising the complement of a nucleic acid sequence selected from the group consisting of SEQ ID NOS:70, 72, 74, 76, 78, 80, 81, and 100, and variants thereof.

15 5. A polynucleotide sequence that hybridizes under stringent conditions to a nucleic acid sequence selected from the group consisting of SEQ ID NOS:66, 69, 80, and 81.

20 6. The polynucleotide sequence of Claim 5, wherein said polynucleotide sequence is selected from the group consisting of SEQ ID NOS:70, 72, 74, 76, 78, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 102, 103, 104, 105, 106, 107, 108, 109, and 110.

7. The polynucleotide sequence of Claim 6, wherein said nucleotide sequence comprises a purified, synthetic nucleotide sequence having a length of about ten to fifty nucleotides.

5 8. A method for detecting the presence of polynucleotide sequences encoding at least a portion of human telomerase in a biological sample, comprising the steps of:

10 a) providing:  
i) a biological sample suspected of containing nucleic acid corresponding to the polynucleotide sequence of SEQ ID NO:100;

15 ii) the nucleotide sequence of SEQ ID NO:100, or a fragment thereof;

b) combining said biological sample with said nucleotide under conditions such that a hybridization complex is formed between said nucleic acid and said nucleotide; and

15 c) detecting said hybridization complex.

9. The method of Claim 8, wherein, said nucleic acid corresponding to the nucleotide sequence of SEQ ID NO:100 is ribonucleic acid.

10. The method of Claim 9, wherein said detected hybridization complex correlates with expression of the polynucleotide of SEQ ID NO:100 in said biological sample.

11. The method of Claim 8, wherein, said nucleic acid corresponding to the nucleotide sequence of SEQ ID NO:100 is deoxyribonucleic acid.

12. The method of Claim 11, wherein said detecting of said hybridization complex comprises conditions that permit the detection of alterations in the nucleotide of SEQ ID NO:100 in said biological sample.

13. An antisense molecule comprising the nucleic acid sequence complementary to at least a portion of the nucleotide of SEQ ID NO:100.

14. A pharmaceutical composition comprising the antisense molecule of Claim 13, and a pharmaceutically acceptable excipient.

5 15. The polynucleotide sequence of Claim 4, wherein said nucleotide sequence is contained on a recombinant expression vector.

16. The polynucleotide sequence of Claim 15, wherein said expression vector containing said nucleotide sequence is contained within a host cell.

10 17. A method for producing a polypeptide comprising the amino acid sequence of SEQ ID NO:101, the method comprising the steps of:

- a) culturing the host cell of Claim 16, under conditions suitable for the expression of the polypeptide; and
- b) recovering the polypeptide from the host cell culture.

15 18. A purified antibody which binds specifically to a polypeptide comprising at least a portion of the amino acid sequence of SEQ ID NO:101.

19. A pharmaceutical composition comprising the antibody of Claim 18 and a pharmaceutically acceptable excipient.

20. A method for detecting the expression of human telomerase in a biological sample comprising the steps of:

- a) providing:
  - i) a biological sample suspected of expressing human telomerase protein; and
  - ii) the antibody of Claim 18;

b) combining said biological sample and said antibody under conditions such that an antibody:protein complex is formed; and

c) detecting said complex wherein the presence of said complex correlates with the expression of said protein in said biological sample.

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